

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A data model stored in a computer-readable medium for ~~characterizing the interaction of all elements~~ representing the components of a computer network and their relationships to one another, comprising:

a plurality of hardware entities that identify hardware devices connected to the network and characteristics of said devices;

a plurality of software entities for representing software, ~~which is contained within said data model~~ components of the network, and the relationship of said software components to said hardware devices;

a plurality of configuration entities ~~for modeling configuration~~ containing information regarding the configuration of said software components, said hardware devices, and other components of the network for provisioning said components, ~~which is contained within said data model;~~

a plurality of monitoring entities ~~for modeling monitoring~~ containing information pertaining to monitoring the operation of said hardware devices and software components of the network, ~~which is contained within said data model;~~

~~a plurality of hardware entities for modeling hardware device information of the hardware devices connected to the network, which is contained within said data model;~~

a plurality of domain name server (DNS) entities for ~~modeling~~ controlling the assignment of DNS information of domain names on the network, ~~which is contained within said data model~~; and

a plurality of network entities ~~for modeling network~~ containing information describing attributes of the network, ~~which is contained within said data model~~.

2. (Original) The data model of claim 1, further comprising:

a plurality of queues entities that may be used by agents in accessing information from said data model regarding any of the information contained therein.

3. (Original) The data model of claim 1, wherein:

at least one of said plurality of software entities is related to:

at least one of said plurality of configuration entities in at least one many to one relationship and at least one one to many relationship, and

at least one of said plurality of network entities in at least one many to one relationship and at least one one to many relationship; and

at least one of said plurality of configuration entities is related to:

at least one of said plurality of monitoring entities in at least one one to many relationship,

at least one of said plurality of network entities in at least one many to one relationship, and

at least one of said plurality of hardware entities in at least one many to one relationship and at least one one to many relationship; and

at least one of said plurality of monitoring entities is related to at least one of said plurality of hardware entities in at least one many to one relationship.

4. (Original) The data model of claim 3, wherein at least one of said plurality of software entities is optionally related to at least one of said plurality of hardware entities in a many to one relationship.

5. (Original) The data model of claim 3, wherein at least one of said plurality of configuration entities is optionally related to at least one of said plurality of DNS entities in a many to one relationship.

6. (Original) The data model of claim 3, wherein at least one of said plurality of DNS entities is optionally related to at least one of said plurality of network entities in a many to one relationship.

7. (Original) The data model of claim 1, wherein said plurality of software entities comprises:

- a plurality of units entities;
- a plurality of unit monitor types entities;
- a plurality of unit conflicts entities;
- a plurality of application role units entities;
- a plurality of platforms entities;
- a plurality of unit packages entities;
- a plurality of account role units entities;
- a plurality of device pool role units entities;
- a plurality of device pool roles entities;
- a plurality of packages entities;
- a plurality of account packages entities;
- a plurality of account roles entities;

a plurality of device roles entities;
a plurality of dependent roles entities;
a plurality of included packages entities;
a plurality of application packages entities;
a plurality of device pool packages entities; and
a plurality of application roles entities.

8. (Original) The data model of Claim 7, wherein said units entities represent software units that form part of a software package, and wherein said units entities are related to:

said unit monitor types entities by a one to many relationship;
said unit conflicts entities by at least one to many relationship;
said application role units entities by a one to many relationship;
said unit packages entities by a one to many relationship;
said account role units entities by a one to many relationship;
said device pool role units entities by a one to many relationship; and
said plurality of network entities by a many to one relationship.

9. (Original) The data model of Claim 7, wherein said unit monitor types entities represent the type of monitoring associated with individual units, and wherein said unit monitor types entities relate to said units entities by a many to one relationship.

10. (Original) The data model of Claim 7, wherein said unit conflicts entities identify conflicts between units represented by said units entities, and wherein said unit conflicts entities are related to said units entities by at least one many to one relationships.

11. (Original) The data model of Claim 7, wherein said application role units relate said units entities to said software application roles entities by way of a many to one relationship with said units entities and a many to one relationship with said application roles entities.

12. (Original) The data model of Claim 7, wherein said platforms entities represent the computer platform upon which software units, represented by said units entities, are to run, and wherein said platforms entities are related to:

said units entities by an optional one to many relationship;

said application roles entities by an optional one to many relationship;

said account roles entities by an optional one to many relationship;

said device pool roles entities by a one to many relationship; and

said packages entities by a one to many relationship.

13. (Original) The data model of Claim 7, wherein said unit packages entities relate said units entities to said packages entities by way of a many to one relationship with said units entities and a many to one relationship with said packages entities.

14. (Original) The data model of Claim 7, wherein said account role units entities relate said units entities to said account roles entities by way of a many to one relationship with said units entities and a many to one relationship with said account roles entities.

15. (Original) The data model of Claim 7, wherein said device pool role units entities relate said units entities to said device pool roles entities by way of a many to one relationship with said units entities and a many to one relationship with said device pool roles entities.

16. (Original) The data model of Claim 7, wherein said device pool roles entities represent software roles of a device pool, and wherein said device pool roles are related to:

- said platforms entities by a many to one relationship;
- said device pool role units entities by a one to many relationship;
- said device roles entities by a one to many relationship; and
- said device pool packages entities by a one to many relationship.

17. (Original) The data model of Claim 7, wherein said packages entities represent software packages, and wherein said packages entities are related to:

- said unit packages entities by a one to many relationship;
- said platforms entities by a many to one relationship;
- said plurality of network entities by a many to one relationship;
- said included packages entities by at least one one to many relationship;
- said application packages entities by a one to many relationship;
- said device pool packages entities by a one to many relationship; and
- said account packages entities by a one to many relationship.

18. (Original) The data model of Claim 7, wherein said account packages entities relates said packages entities to said account roles entities by way of a many to one relationship with said packages entities and a many to one relationship with said account roles entities.

19. (Original) The data model of Claim 7, wherein said account roles represent software roles relating to specific customer accounts, wherein said account roles entities relate to:

said account role units entities by a one to many relationship;

said account packages entities by a one to many relationship;

said plurality of network entities by a many to one relationship; and

said device roles entities by an optional one to many relationship.

20. (Original) The data model of Claim 7, wherein said device roles entities represent software roles relating to specific devices, wherein said device roles entities relate to:

said device pool roles by a many to one relationship; and

said plurality of configuration entities by at least one to many relationship.

21. (Original) The data model of Claim 7, wherein said dependent roles entities represent software roles dependent upon application software roles, wherein said dependent roles entities relate to said application roles entities by at least one many to one relationship.

22. (Original) The data model of Claim 7, wherein said included packages entities represent software packages that are included in a specific software installation, and wherein said included packages entities are related to said packages entities by at least one many to one relationship.

23. (Original) The data model of Claim 7, wherein said application packages relate said packages entities to said application roles entities by way of a many to one relationship with said package entities and a many to one relationship with said application roles entities.

24. (Original) The data model of Claim 7, wherein said device pool packages entities relate said packages entities to said device pool roles entities by way of a many to one relationship with said package entities and a many to one relationship with said device pool roles entities.

25. (Original) The data model of Claim 7, wherein said application roles entities represent software application roles, and said application roles entities relate to:

said dependent roles entities by at least one one to many relationship;

said application role units entities by a one to many relationship;

said plurality of configuration entities by a one to many relationship;

said plurality of network entities by a one to many relationship; and

said plurality of configuration entities by at least one many to one relationship.

26. (Original) The data model of Claim 1, wherein said plurality of configuration entities further comprises:

a plurality of conduits entities;

a plurality of device role IP host entities;

a plurality of interface IP type entities;

a plurality of virtual IPs entities;

a plurality of services entities;

a plurality of role configurations entities;

a plurality of device role configuration entities;

a plurality of status entities;

a plurality of component type entities; and

a plurality of device role configuration values entities.

27. (Original) The data model of Claim 26, wherein said plurality of configuration entities further comprises a plurality of manufacturing model entities.

28. (Currently Amended) The data model of Claim 26, wherein said plurality of configuration entities further comprises ~~a plurality of configuration entities further comprises~~ a plurality of component objects entities.

29. (Original) The data model of Claim 26, further comprising a plurality of device roles history entities.

30. (Original) The data model of Claim 26, wherein said conduits entities represent communications portholes across a firewall via which two devices may communicate across the firewall, wherein said conduits entities relate to said plurality of hardware entities by a many to one relationship.

31. (Original) The data model of Claim 26, wherein said device role IP host entities relates an IP host address to a device role, and relates to:

said interface IP type entities by a many to one relationship;

said plurality of network entities by a many to one relationship; and

said plurality of software entities by a many to one relationship.

32. (Original) The data model of Claim 26, wherein said interface IP type entities represent allowed types of IP addresses within the network, and wherein said interface IP type entities relate to said device role IP host entities in a one to many relationship.

33. (Original) The data model of Claim 26, wherein said virtual IPs entities represent virtual IP addresses that are used by a router to route traffic for a single IP address to multiple computers, and wherein said virtual IPs entities relates to:

said plurality of monitoring entities by a one to many relationship;

said plurality of hardware entities by a many to one relationship; and

said plurality of network entities by a many to one relationship.

34. (Original) The data model of Claim 26, wherein said services entities represent services to be performed by a series of applications accessible by a network server, and wherein said services entities relate to said software entities by an optional one to many relationship.

35. (Original) The data model of Claim 26, wherein said role configurations entities represent configurations related to software roles, and wherein said role configurations relate to:

said plurality of software entities by a many to one relationship; and

said component type entities by a many to one relationship.

36. (Original) The data model of Claim 26, wherein said device role configuration entities represent configurations of software roles for specific devices, and wherein said device role configuration entities relate to:

said device role configuration values entities by a one to many relationship; and

said plurality of software entities by a many to one relationship.

37. (Original) The data model of Claim 26, wherein said status entities represent status conditions of various hardware and software objects, and wherein said status entities relate to:

said plurality of software entities by at least one one to many relationship; and

said plurality of hardware entities by a one to many relationship.

38. (Original) The data model of Claim 26, wherein said component type entities represent types of components used with the data model, and wherein said component type entities relate to said role configurations entities with a one to many relationship.

39. (Original) The data model of Claim 26, wherein said device role configuration values entities represent configuration values associated with software roles of a specific device, wherein said device role configuration values entities relate to device role configuration entities by a many to one relationship.

40. (Original) The data model of Claim 1, wherein said plurality of monitoring components further comprises:

- a plurality of device request classes entities;
- a plurality of request class entities;
- a plurality of request class variables entities;
- a plurality of manager applications entities;
- a plurality of monitor ACLs entities;
- a plurality of device application configuration entities;
- a plurality of device authorizations entities;
- a plurality of device ACLs entities;
- a plurality of SNMP variables entities;
- a plurality of ACL entries entities; and
- a plurality of VIP groups entities.

41. (Original) The data model of Claim 40, further comprising a plurality of autonomous system map entities.

42. (Original) The data model of Claim 40 wherein said device request classes entities relate said request class entities to hardware devices by way of a many to one relationship with said request class entities and a many to one relationship with said plurality of hardware entities.

43. (Original) The data model of Claim 40 wherein said request class entities represent specific classes of requests that may be made, and wherein said request class entities relate to:
said device request classes entities by a one to many relationship; and
said request class variables entities by an optional one to many relationship.

44. (Original) The data model of Claim 40 wherein said request class variables may be used to relate request classes associated with said request class entities with simple network management protocol (SNMP) variables associated with said SNMP variables entities by way of an optional many to one relationship with said request class entities, and optional many to one relationship with said SNMP variables entities.

45. (Original) The data model of Claim 40 wherein said manager applications entities relate the monitor access control lists (ACLs) represented by the monitor ACLs entities with the device application configurations represented by the device application configuration entities by way of a one to many relationship with the monitor ACLs entities and a one to many relationship with the device application configuration entities.

46. (Original) The data model of Claim 40 wherein said monitor ACLs entities represent the monitoring of the ACLs for various devices on the network, wherein said monitor ACLs entities relate to:

said manager applications entities by a many to one relationship;

said device ACLs entities by a one to many relationship; and .

said ACL entries entities by a one to many relationship.

47. (Original) The data model of Claim 40 wherein said device application configuration entities represent the configuration of applications contained on a device, and wherein said device application configuration entities relate to:

said manager applications entities by a many to one relationship; and

said plurality of hardware entities by a many to one relationship.

48 (Original) The data model of Claim 40 wherein said device authorizations entities represent the authorization levels of particular devices, and wherein said device authorizations entities relate to:

said device ACLs entities by a one to many relationship; and

said plurality of hardware entities by a many to one relationship.

49. (Original) The data model of Claim 40 wherein said device ACLs entities represent device access control lists (ACLs) for specific devices on a network, wherein said device ACLs entities relate to:

said monitor ACLs entities by a many to one relationship; and

said device authorizations entities by a many to one relationship.

50. (Original) The data model of Claim 40 wherein said SNMP variables entities represent specific variables associated with the simple network management protocol (SNMP) used by devices on the network, wherein said SNMP variable entities relate to said request class variables entities by an optional one to many relationship.

51. (Original) The data model of Claim 40 wherein said ACL entries entities represent entries within an ACL, wherein said ACL entries entities relate to said monitor ACLs by a many to one relationship.

52. (Original) The data model of Claim 40 wherein said virtual IP (VIP) groups entities represent particular groups sharing virtual IP addresses, wherein said VIP groups entities relate to:

said plurality of configuration entities by a many to one relationship; and

said plurality of hardware entities by a many to one relationship.

53. (Original) The data model of Claim 1, wherein said plurality of hardware entities further comprises:

a plurality of memory components entities;

a plurality of storage components entities;

a plurality of bus components entities;

a plurality of interface components entities;

a plurality of interface cards entities;

a plurality of devices entities;

a plurality of interface type entities;

a plurality of device console entities;

a plurality of CPU components entities;

a plurality of SUB interfaces entities;

a plurality of circuits entities; and

a plurality of interface IPs entities.

54. (Original) The data model of Claim 53, wherein said memory components entities represent memory components, and wherein said memory components entities relate to said devices entities by a many to one relationship.

55. (Original) The data model of Claim 53, wherein said storage components entities represent storage components, and wherein said memory components entities relate to said devices entities by a many to one relationship.

56. (Original) The data model of Claim 53, wherein said bus components entities represent storage components, and wherein said bus components entities relate to said devices entities by a many to one relationship.

57. (Original) The data model of Claim 53, wherein said interface components entities represent interface components, and wherein said interface components entities relate to:

said interface cards entities by a many to one relationship;

said interface type entities by a many to one relationship; and

said SUB interfaces entities by a one to many relationship.

58. (Original) The data model of Claim 53, wherein said interface cards entities represent interface cards for hardware devices, and wherein said interface cards entities relate to said devices entities by a many to one relationship.

59. (Original) The data model of Claim 53, wherein said devices entities represent hardware devices connected to the network, and wherein said devices entities relate to:

said memory components entities by a one to many relationship;

said storage components entities by a one to many relationship;

said bus components entities by a one to many relationship;

said interface cards entities by a one to many relationship;
said device console entities by a one to many relationship;
said CPU components entities by a one to many relationship;
said plurality of monitoring components by at least one one to many relationship; and
said plurality of configuration components by at least one one to many relationship
and a many to one relationship.

60. (Original) The data model of Claim 53, wherein said interface type entities represent valid types of interfaces, and wherein said interface type entities relate to said interface components by a one to many relationship.

61. (Original) The data model of Claim 53, wherein said device console entities represent a device console, whereby a user may access devices represented by said devices entities, and wherein said device console entities relate to said devices entities by a many to one relationship.

62. (Original) The data model of Claim 53, wherein said CPU components entities represent hardware CPU components, and wherein said CPU components entities relate to said devices entities by a many to one relationship.

63. (Original) The data model of Claim 53, wherein said SUB interfaces entities represent virtual local area network (VLAN) interfaces between interface components represented by said interface components entities and interface IPs represented by said interface IPs, and wherein said SUB interfaces entities relate to:

said interface components entities by a many to one relationship; and
said interface IPs entities by a one to many relationship.

64. (Original) The data model of Claim 53, wherein said circuits entities represent specific hardware circuits, and wherein said circuits entities relates to said SUB interfaces entities by an optional one to many relationship.

65. (Original) The data model of Claim 53, wherein said interface IPs entities represents actual interface IP addresses associated with hardware devices, and wherein said interface IPs entities relate to:

said plurality of monitoring components by a one to many relationship; and

said SUB interfaces entities by a many to one relationship.

66. (Original) The data model of Claim 1, wherein said DNS entities further comprises:

a plurality of DNS hosts entities;

a plurality of DNS host types entities;

a plurality of DNS ACLs DNS ACLs entities;

a plurality of DNS ACL entries entities;

a plurality of DNS allow transfers entities;

a plurality of DNS domain types entities;

a plurality of DNS domains entities;

a plurality of DNS allow queries;

a plurality of DNS domain masters entities; and

a plurality of DNS master IPs.

67. (Original) The data model of Claim 66, further comprising a plurality of DNS configuration entities.

68. (Original) The data model of Claim 66, wherein said DNS hosts entities represent DNS host devices, and wherein said DNS hosts entities relate to:

said DNS host types entities by a many-to-one relationship;

said DNS domains entities by a many-to-one relationship; and

said plurality of configuration entities by an optional one-to-many relationship.

69. (Original) The data model of Claim 66, wherein said DNS host types entities represent allowed DNS host types, and wherein said DNS host types entities relate to said DNS hosts entities in a one-to-many relationship.

70. (Original) The data model of Claim 66, wherein said DNS ACLs entities represent ACLs associated with specific DNS names, and wherein said DNS ACLs entities relate to:

said DNS ACL entries entities by a one-to-many relationship;

said DNS allow transfers entities by a one-to-many relationship; and

said DNS allow queries entities by a one-to-many relationship.

71. (Original) The data model of Claim 66, wherein said DNS ACL entries entities relate to said DNS ACLs entities by a many-to-one relationship.

72. (Original) The data model of Claim 66, wherein said DNS allow transfers entities relate to:

said DNS ACLs entities by a many-to-one relationship; and

said DNS domains entities by a many-to-one relationship.

73. (Original) The data model of Claim 66, wherein said DNS domain types entities represent the allowed types of DNS names for the network, and wherein said DNS domain types entities relate to said DNS domains entities by a one-to-many relationship.

74. (Original) The data model of Claim 66, wherein said DNS domains entities represent the various DNS domains of the network, and wherein said DNS domains entities relate to:

said DNS hosts entities by a one-to-many relationship;

said DNS allow transfers entities by a one-to-many relationship;

said DNS allow queries entities by a one-to-many relationship;

said DNS domain types entities by a many-to-one relationship;

said DNS domain masters entities by a many-to-one relationship; and

said plurality of network entities by an optional many-to-one relationship.

75. (Original) The data model of Claim 66, wherein said DNS allow queries entities represent specific DNS queries allowed on the network, and wherein said DNS allow queries entities relate to:

said DNS domains entities by a many-to-one relationship; and

said DNS ACLs entities by a many-to-one relationship.

76. (Original) The data model of Claim 66, wherein said DNS domain masters entities relate DNS domains represented by said DNS domains entities and DNS master IPs represented by DNS master IPs entities by way of a one-to-many relationship with said DNS domains entities and a many-to-one relationship with said DNS master IPs entities.

77. (Original) The data model of Claim 66, wherein said DNS master IPs entities relate to DNS master IP addresses of the network, and relate to said DNS domain masters entities by a one-to-many relationship.

78. (Original) The data model of Claim 1, wherein said plurality of network entities further comprises:

a plurality of accounts entities;
a plurality of account configuration entities;
a plurality of account configuration values entities;
a plurality of customer tiers entities;
a plurality of data center configuration values entities;
a plurality of data center configuration entities;
a plurality of VLAN compartments entities;
a plurality of data centers entities;
a plurality of device pool VLAN platforms entities;
a plurality of VLAN IP pools entities;
a plurality of data centered tiers entities;
a plurality of VLAN pool type entities;
a plurality of VLAN sub type entities;
a plurality of IP addresses entities; and
a plurality of VLAN CIDR reserved entities.

79. (Original) The data model of Claim 78, further comprising a plurality of Site configuration entities.

80. (Original) The data model of Claim 78 wherein said accounts entities represent customer account on a network, and wherein said accounts entities relate to:

said plurality of software entities by at least one one-to-many relationship; said
account configuration entities by a one-to-many relationship;
said customer tiers entities by a one-to-many relationship; and
said plurality of DNS entities by an optional one-to-many relationship.

81. (Original) The data model of Claim 78 wherein said account configuration entities represent configuration information of a customer account, wherein said account configuration entities relate to:

said accounts entities by a many-to-one relationship; and

said account configuration values entities by a one-to-many relationship.

82. (Original) The data model of Claim 78 wherein said account configuration values represent configuration values associated with configurations of customer accounts, and wherein said account configuration values relate to:

said account configuration entities by a many-to-one relationship.

83. (Original) The data model of Claim 78 wherein said customer tiers entities represent tiers of services accessible to customers on a network, and wherein said customer tiers entities relate to:

said accounts entities by a many-to-one relationship;

said VLAN compartments entities by a one-to-many relationship;

said data centers entities by a many-to-one relationship; and

said plurality of software entities by an optional one-to-many relationship.

84. (Original) The data model of Claim 78 wherein said data centered configuration values entities relate to said data center configuration entities by a many-to-one relationship.

85. (Original) The data model of Claim 78 wherein the data center configuration entities relate to said data center configuration values entities by a one-to-many relationship, and to said data centers entities by a many-to-one relationship.

86. (Original) The data model of Claim 78 wherein said VLAN compartments entities relate to said customer tiers entities by a many-to-one relationship, and to said VLAN IP pools by a one-to-many relationship.

87. (Original) The data model of Claim 78 wherein said data centers entities relate to said customer tiers entities by a one-to-many relationship and to said data center configuration entities by a one-to-many relationship.

88. (Original) The data model of Claim 78 wherein said device pool VLAN platforms entities relate to said VLAN IP pools entities by a many-to-one relationship.

89. (Original) The data model of Claim 78 wherein said VLAN IP pools entities relate to said VLAN compartments entities and said VLAN SUB Type entities by many-to-one relationships, and to said device pool VLAN platforms entities and IP addresses entities by one-to-many relationships.

90. (Original) The data model of Claim 78 wherein said data centered tiers entities relate to said data centers entities and to said plurality of software entities by many-to-one relationships.

91. (Original) The data model of Claim 78 wherein said VLAN pool type entities represent information regarding the allowed types of VLAN pools.

92. (Original) The data model of Claim 78 wherein said VLAN sub type entities relate to said VLAN IP Pools by a one-to-many relationship.

93. (Original) The data model of Claim 78 wherein said IP addresses entities relate to said VLAN IP pools by a many-to-one relationship, and to said plurality of configuration entities by at least one one-to-many relationship.

94. (Original) The data model of Claim 78 wherein said VLAN CIDR reserve entities indicate the CIDR VLAN addresses that are reserved for network operation and the addresses that are available for assignment.

95. (Currently Amended) The data model of Claim [[1]] 2, wherein said queues entities further comprises:

- a plurality of agent queues entities;
- a plurality of agent queue commands entities;
- a plurality of agent command output entities;
- a plurality of agent commands entities; and
- a plurality of agent command text entities.

96. (Original) The data model of Claim 95, further comprising a plurality of agent queue Mutex entities.

97. (Original) The data model of Claim 95, further comprising a plurality of agent command Mutex entities.

98. (Currently Amended) The data model of Claim [[25]] 95 wherein said agent queues entities is used to indicate to agents a list of tasks to be performed and may optionally relate to multiple agent queues entities and may relate to said agent queue commands entities by a one-to-many relationship.

99. (Currently Amended) The data model of Claim ~~[[25]]~~ 95 wherein said agent queue commands entities relate to said agent queues entities and said agent commands in many-to-one relationships and to said agent command output entities in a one-to-many relationship.

100. (Currently Amended) The data model of Claim ~~[[25]]~~ 95 wherein said agent command text entities relate to said agent commands entities by a many-to-one relationship.